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AMENDMENTS TO THE CLAIMS:

1. (Original) A GFP frame transfer apparatus for transferring a GFP (Generic Frame Procedure) frame over a GFP network, comprising an FCS generation section that generates, when said GFP frame is generated and sent by said GFP frame transfer apparatus, an FCS (Frame Check Sequence) using a payload field of said GFP frame as a generation target area and adds this FCS to the FCS field of said GFP frame.

2. (Original) The GFP frame transfer apparatus according to claim 1, further comprising an FCS check section that carries out, when said GFP frame transfer apparatus receives said GFP frame, an FCS check using said payload field and said FCS field of said GFP frame.

3. (Previously presented) The GFP frame transfer apparatus according to claim 2, wherein when said FCS check by said FCS check section detects an error of the GFP frame to be transferred to a next GFP frame transfer apparatus, said GFP frame is not discarded, but transferred to the next GFP frame transfer apparatus with a same FCS added when said error is detected.

4. (Previously presented) The GFP frame transfer apparatus according to claim 2, further comprising a monitoring control processing section that is notified, when said FCS check by said FCS check section detects an error, of this error detection from said FCS check section and notifies this error detection to a control system of said GFP network.

5. (Previously presented) A GFP frame transfer apparatus for transferring a GFP (Generic Frame Procedure) frame over a GFP network, comprising an FCS recalculation section that recalculates, when said GFP frame transfer apparatus receives said GFP frame and transfers to a next GFP frame transfer apparatus, the FCS of said GFP frame output from said GFP frame transfer apparatus based on a difference of an extension header area of said GFP frame and an eHEC (extension Header Error Control) field before and after an update in said GFP frame transfer apparatus and the FCS (Frame Check Sequence) of said GFP frame when input to said GFP frame transfer apparatus, and adds this FCS to the FCS field of said GFP frame.

6. (Original) The GFP frame transfer apparatus according to claim 5, further comprising an FCS check section that carries out, when said GFP frame transfer apparatus receives said GFP frame, an FCS check using said payload area and said FCS

field of said GFP frame.

7. (Original) The GFP frame transfer apparatus according to claim 6, wherein when said FCS check by said FCS check section detects an error of the GFP frame to be transferred to the next GFP frame transfer apparatus, said GFP frame is not discarded, but transferred to said next GFP frame transfer apparatus with said FCS recalculated by said FCS recalculation section added.

8. (Previously presented) The GFP frame transfer apparatus according to claim 6, further comprising a monitoring control processing section that is notified, when said FCS check by said FCS check section detects an error, of this error detection from said FCS check section and notifies this error detection to a control system of said GFP network.

9. (Previously presented) The GFP frame transfer apparatus according to claim 5, wherein said FCS recalculation section comprises:

a subtraction circuit that calculates a difference of said extension header area of said GFP frame and said eHEC field before and after an update in said GFP frame transfer apparatus;

a CRC operation circuit that includes a plurality of remainder registers, provides a feedback corresponding to a generating function G(x) of said FCS for said plurality of remainder registers and receives said difference as an input; and

an addition circuit that calculates a sum of outputs of said plurality of remainder registers of said CRC operation circuit and bits of said FCS of said GFP frame when input to said GFP frame transfer apparatus.

10. (Previously presented) The GFP frame transfer apparatus according to claim 9, wherein the FCS recalculation by said FCS recalculation section is performed by calculating said difference by said subtraction circuit, initializing all said plurality of remainder registers of said CRC operation circuit to 0, inputting said difference to said CRC operation circuit, inputting 0 by a number of bits of said payload field +32 to said CRC operation circuit and adding up outputs of said plurality of remainder registers and said bits of said FCS of said GFP frame when input to said GFP frame transfer apparatus using said addition circuit at a next clock.

11. (Previously presented) A GFP frame transfer apparatus for transferring a GFP (Generic Frame Procedure) frame over a GFP network, comprising an FCS check/error notification bit setting section that, when said GFP frame transfer apparatus receives

said GFP frame, carries out an error check using an FCS (Frame Check Sequence) of said GFP frame, and when this FCS check detects an error, sets an error notification bit in a predetermined field in an extension header area of said GFP frame.

12. (Previously presented) The GFP frame transfer apparatus according to claim 11, wherein, when said FCS check by said FCS check/error notification bit setting section detects an error of the GFP frame to be transferred to a next GFP frame transfer apparatus, said GFP frame is not discarded, but transferred to the next GFP frame transfer apparatus with the FCS recalculated by said GFP frame transfer apparatus added.

13. (Previously presented) The GFP frame transfer apparatus according to claim 11, wherein said GFP frame comprises a GFP ring frame and said predetermined field in which said error notification bit is set is provided in a part of a Spare field in an extension header area of said GFP ring frame.

14. (Previously presented) The GFP frame transfer apparatus according to claim 1, wherein said GFP frame comprises a GFP ring frame.

15. (Previously presented) The GFP frame transfer apparatus according to claim 1, wherein said GFP frame comprises a GFP path frame that stores a label corresponding to a path identification (ID) defined to uniquely specify a path from an Ingress node to an Egress node in said GFP network in a predetermined field of an extension header area.

16. (Previously presented) The GFP frame transfer apparatus according to claim 1, further comprising a packet extraction section that terminates a frame of a subnetwork that stores a packet to be stored in the payload field of said GFP frame and extracts said packet from the frame of said subnetwork.

17. (Previously presented) The GFP frame transfer apparatus according to claim 16, wherein said packet extraction section extracts said packet by removing an unnecessary overhead for said subnetwork from a frame of said subnetwork.

18. (Previously presented) The GFP frame transfer apparatus according to claim 16, wherein said subnetwork comprises Ethernet.

19. (Previously presented) The GFP frame transfer apparatus according to claim 18, wherein said packet extraction section extracts said packet from a payload of an

Ethernet frame of said Ethernet.

20. (Previously presented) The GFP frame transfer apparatus according to claim 16 or claim 17, wherein said subnetwork comprises a POS (Packet Over SONET).

21. (Previously presented) The GFP frame transfer apparatus according to claim 20, wherein said packet extraction section extracts said packet from a payload of an HDLC frame of said POS.

22. (Previously presented) The GFP frame transfer apparatus according to claim 1, further comprising a GFP frame transmission section that stores said GFP frame in a layer 1 frame which comprises a first layer frame of an OSI reference model accommodating said GFP frame in said GFP network and sends said layer 1 frame storing said GFP frame from an appropriate output port of said GFP frame transfer apparatus to said GFP network.

23. (Original) The GFP frame transfer apparatus according to claim 22, wherein a SONET (Synchronous Optical NETwork) is used as the first layer of said OSI reference model.

24. (Previously presented) The GFP frame transfer apparatus according to claim 23, wherein said GFP frame transmission section stores said GFP frame in a payload of a SONET frame of said SONET and sends said SONET frame storing said GFP frame to said GFP network.

25. (Original) The GFP frame transfer apparatus according to claim 22, wherein an OTN (Optical Transport Network) is used as the first layer of said OSI reference model.

26. (Previously presented) The GFP frame transfer apparatus according to claim 25, wherein said GFP frame transmission section stores said GFP frame in an OPUk (Optical channel payload unit) which comprises a payload of a digital wrapper frame of said OTN and sends said digital wrapper frame that stores said GFP frame to said GFP network.

27. (Previously presented) A GFP frame transfer method for transferring a GFP (Generic Frame Procedure) frame over a GFP network, comprising an FCS generating step of generating, when said GFP frame is generated and sent by said GFP frame transfer apparatus, an FCS (Frame Check Sequence) using a payload field of said GFP

frame as a generation target area and adding this FCS to an FCS field of said GFP frame.

28. (Original) The GFP frame transfer method according to claim 27, further comprising an FCS checking step of carrying out, when said GFP frame transfer apparatus receives said GFP frame, an FCS check using said payload field and said FCS field of said GFP frame.

29. (Previously presented) The GFP frame transfer method according to claim 28, wherein when said FCS check in said FCS checking step detects an error of a GFP frame to be transferred to a next GFP frame transfer apparatus, said GFP frame is not discarded, but transferred to the next GFP frame transfer apparatus with a same FCS added when said error is detected.

30. (Previously presented) The GFP frame transfer method according to claim 28, further comprising a monitoring control processing step of notifying, when said FCS check in said FCS checking step detects an error, of this error detection to a control system of said GFP network.

31. (Previously presented) A GFP frame transfer method with a GFP frame transfer apparatus for transferring a GFP (Generic Frame Procedure) frame over a GFP network, comprising an FCS recalculating step of recalculating, when said GFP frame transfer apparatus receives a GFP frame and transfers said GFP frame to a next GFP frame transfer apparatus, an FCS of said GFP frame output from said GFP frame transfer apparatus, based on a difference of an extension header area of said GFP frame and an eHEC (extension Header Error Control) field before and after an update in said GFP frame transfer apparatus and the FCS (Frame Check Sequence) of said GFP frame when input to said GFP frame transfer apparatus, and adding this FCS to an FCS field of said GFP frame.

32. (Original) The GFP frame transfer method according to claim 31, further comprising an FCS checking step of carrying out, when said GFP frame transfer apparatus receives said GFP frame, an FCS check using said payload area and said FCS field of said GFP frame.

33. (Previously presented) The GFP frame transfer method according to claim 32, wherein, when said FCS check in said FCS checking step detects an error of the GFP frame to be transferred to the next GFP frame transfer apparatus, said GFP frame is not

discarded, but transferred to said next GFP frame transfer apparatus with said FCS recalculated in said FCS recalculating step added.

34. (Previously presented) The GFP frame transfer method according to claim 32, further comprising a monitoring control processing step of notifying, when said FCS check in said FCS checking step detects an error, this error detection to a control system of said GFP network.

35. (Previously presented) The GFP frame transfer method according to claim 31, wherein said FCS recalculating step comprises:

a subtraction circuit that calculates said difference of said extension header area of said GFP frame and said eHEC field before and after an update in said GFP frame transfer apparatus;

a CRC operation circuit that includes a plurality of remainder registers, provides feedback corresponding to a generating function G(x) of said FCS for said plurality of remainder registers and receives said difference as input; and

an addition circuit that calculates a sum of outputs of said plurality of remainder registers of said CRC operation circuit and bits of said FCS of said GFP frame when input to said GFP frame transfer apparatus.

36. (Previously presented) The GFP frame transfer method according to claim 35, wherein the FCS recalculation in said FCS recalculating step is performed by calculating said difference by said subtraction circuit, initializing all said plurality of remainder registers of said CRC operation circuit to 0, inputting said difference to said CRC operation circuit, inputting 0 by a number of bits of said payload field +32 to said CRC operation circuit and adding up said outputs of said plurality of remainder registers and said bits of said FCS of said GFP frame when input to said GFP frame transfer apparatus, using said addition circuit at a next clock.

37. (Previously presented) A GFP frame transfer method with a GFP frame transfer apparatus for transferring a GFP (Generic Frame Procedure) frame over a GFP network, comprising an FCS check/error notification bit setting step of carrying out, when said GFP frame transfer apparatus receives said GFP frame, an error check using an FCS (Frame Check Sequence) of said GFP frame, and when this FCS check detects an error, setting an error notification bit in a predetermined field in an extension header area of said GFP frame.

38. (Previously presented) The GFP frame transfer method according to claim 37, wherein, when said FCS check in said FCS check/error notification bit setting step detects an error of the GFP frame to be transferred to a next GFP frame transfer apparatus, said GFP frame is not discarded, but transferred to the next GFP frame transfer apparatus with the FCS recalculated by said GFP frame transfer apparatus added.

39. (Previously presented) The GFP frame transfer method according to claim 37, wherein said GFP frame comprises a GFP ring frame and said predetermined field in which said error notification bit is set is provided in a part of a Spare field in an extension header area of said GFP ring frame.

40. (Previously presented) The GFP frame transfer method according to claim 27, wherein said GFP frame comprises a GFP ring frame.

41. (Previously presented) The GFP frame transfer method according to claim 27, wherein said GFP frame ~~is~~ comprises a GFP path frame that stores a label corresponding to a path identification (ID) defined to uniquely specify a path from an Ingress node to an Egress node in said GFP network in a predetermined field in an extension header

area.

42. (Previously presented) The GFP frame transfer method according to claim 27, further comprising a packet extracting step of terminating a frame of a subnetwork that stores a packet to be stored in the payload field of said GFP frame and extracting said packet from the frame of said subnetwork.

43. (Previously presented) The GFP frame transfer method according to claim 42, wherein in said packet extracting step, said packet is extracted by removing an unnecessary overhead for said subnetwork from the frame of said subnetwork.

44. (Previously presented) The GFP frame transfer method according to claim 42, wherein said subnetwork comprises Ethernet.

45. (Previously presented) The GFP frame transfer method according to claim 44, wherein in the packet extracting step, said packet is extracted from a payload of an Ethernet frame of said Ethernet.

46. (Previously presented) The GFP frame transfer method according to claim 42, wherein said subnetwork comprises a POS (Packet Over SONET).

47. (Previously presented) The GFP frame transfer method according to claim 46, wherein in said packet extracting step, said packet is extracted from a payload of an HDLC frame of said POS.

48. (Previously presented) The GFP frame transfer method according to claim 27, further comprising a GFP frame transmitting step of storing said GFP frame in a layer 1 frame which is a first layer frame of an OSI reference model accommodating said GFP frame in said GFP network and sending said layer 1 frame storing said GFP frame from an appropriate output port of said GFP frame transfer apparatus to said GFP network.

49. (Original) The GFP frame transfer method according to claim 48, wherein a SONET (Synchronous Optical NETwork) is used as the first layer of said OSI reference model.

50. (Previously presented) The GFP frame transfer method according to claim 49, wherein in said GFP frame transmitting step, said GFP frame is stored in a payload of a

SONET frame of said SONET and said SONET frame storing said GFP frame is sent to said GFP network.

51. (Original) The GFP frame transfer method according to claim 48, wherein an OTN (Optical Transport Network) is used as the first layer of said OSI reference model.

52. (Previously presented) The GFP frame transfer method according to claim 51, wherein in said GFP frame transmitting step, said GFP frame is stored in an OPUk (Optical channel payload unit) which is a payload of a digital wrapper frame of said OTN and said digital wrapper frame that stores said GFP frame is sent to said GFP network.